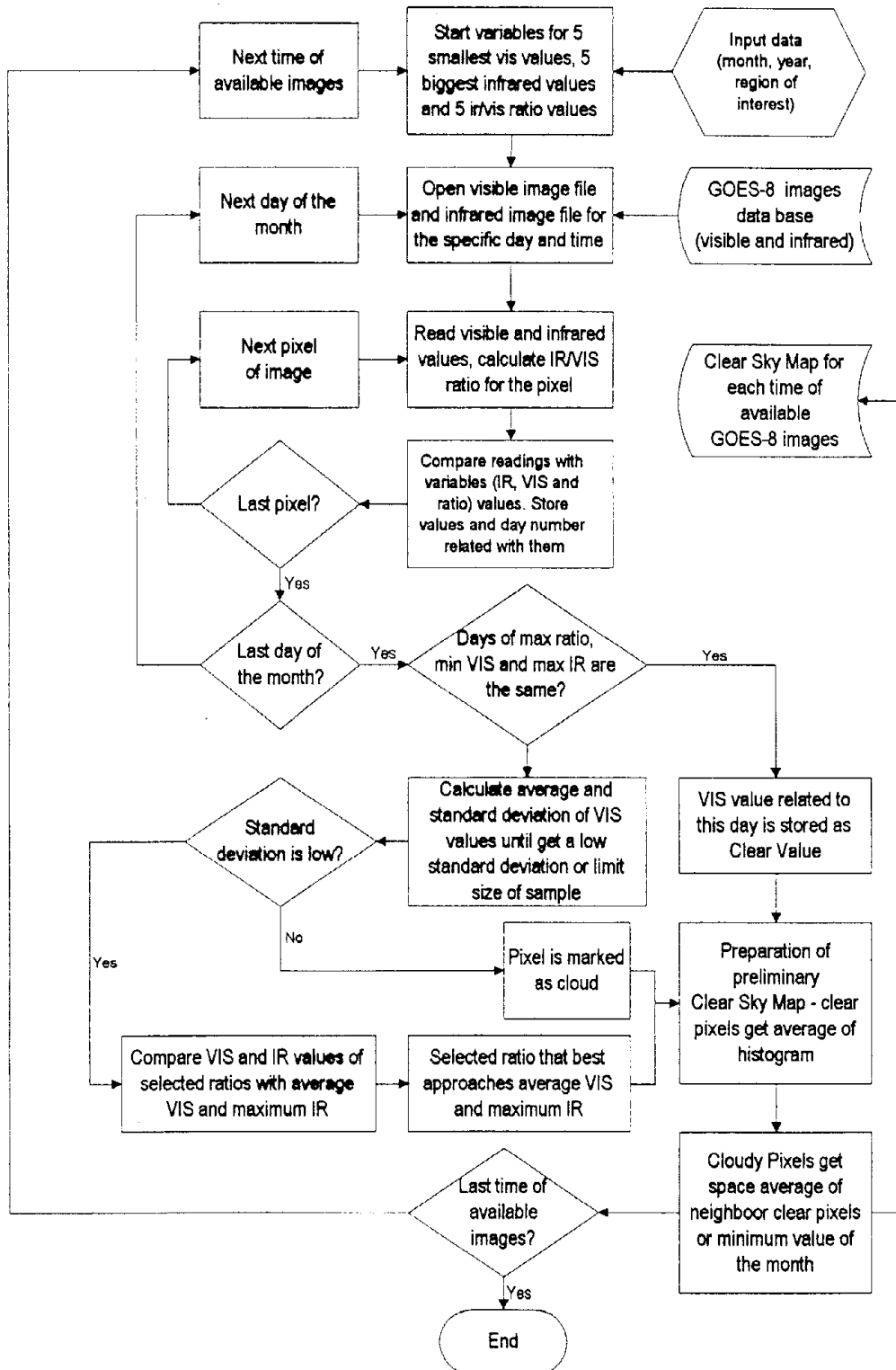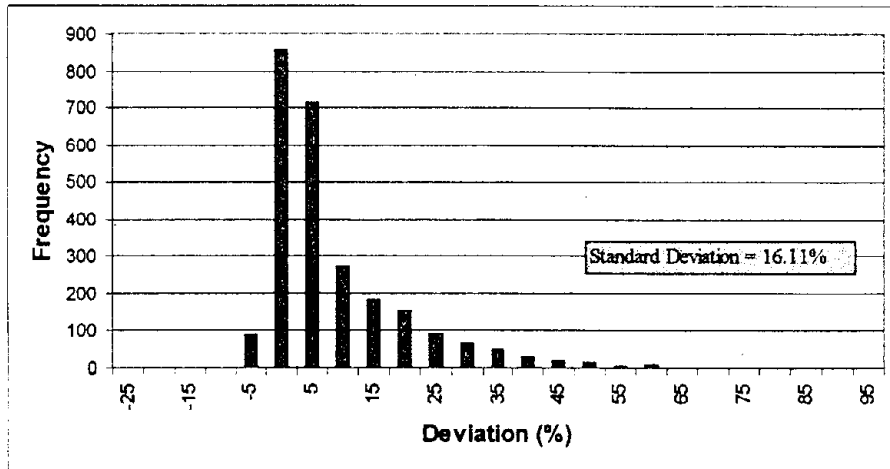# Block Diagrams of Clear Sky Composite Image
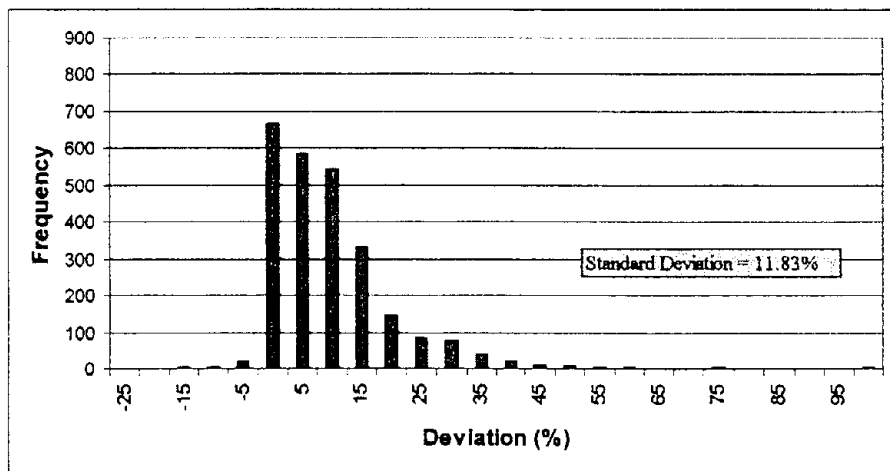
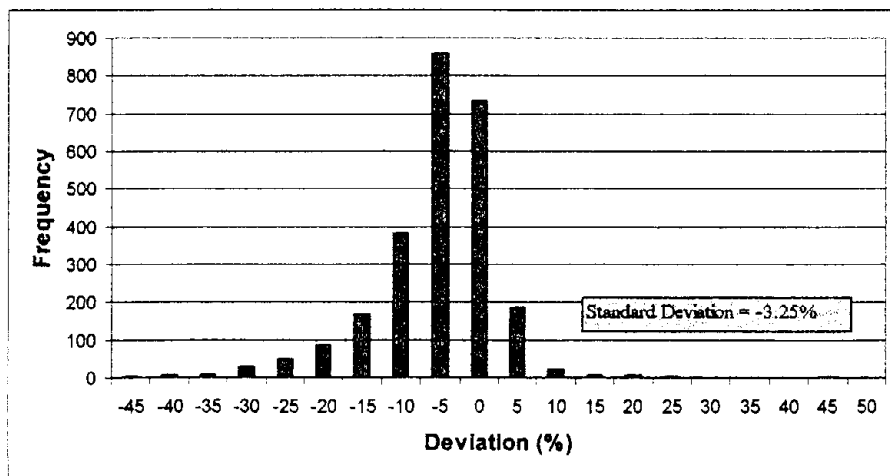## Better infrared/visible ratio - Method #3

Comparative Analysis

(A) Relative deviation between Method 2 and Method 1
(B) Relative deviation between Method 3 and Method 1
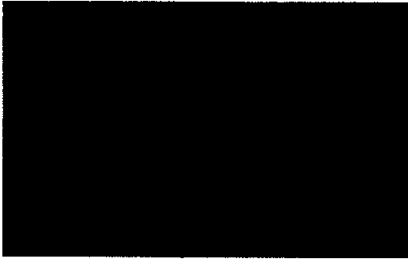(C) Relative deviation between Method 3 and Method 2

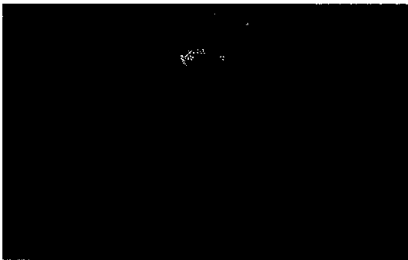**Presentation: Solar Radiation Measurements in Brazil by Enio B. Pereira, et. al.**
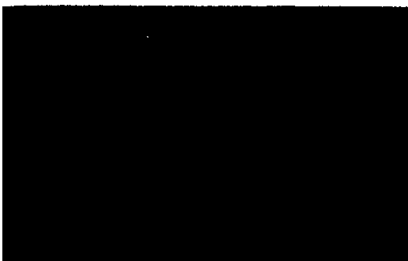
Composite Images
Florianópolis sector (45W to 55W and 25S to 35S)

(A) Clear Sky Image
obtained through Method 1

(B) Clear Sky Image
obtained through Method 2

(C) Clear Sky Image
obtained through Method 3

Presentation: Solar Radiation Measurements in Brazil by Enio B. Pereira, et. al.

Correction for altitude effects on model deviation

Water vapor is 50% distributed within the first 5km of the atmosphere. This affects the model estimations of solar radiation in targets located at high altitudes. Thus, it was necessary to modify the calculation of the precipitable water while keeping the relative humidity constant. This was made by reducing the vertical profile of temperature through a wet adiabatic curve between the sea level and the target level.
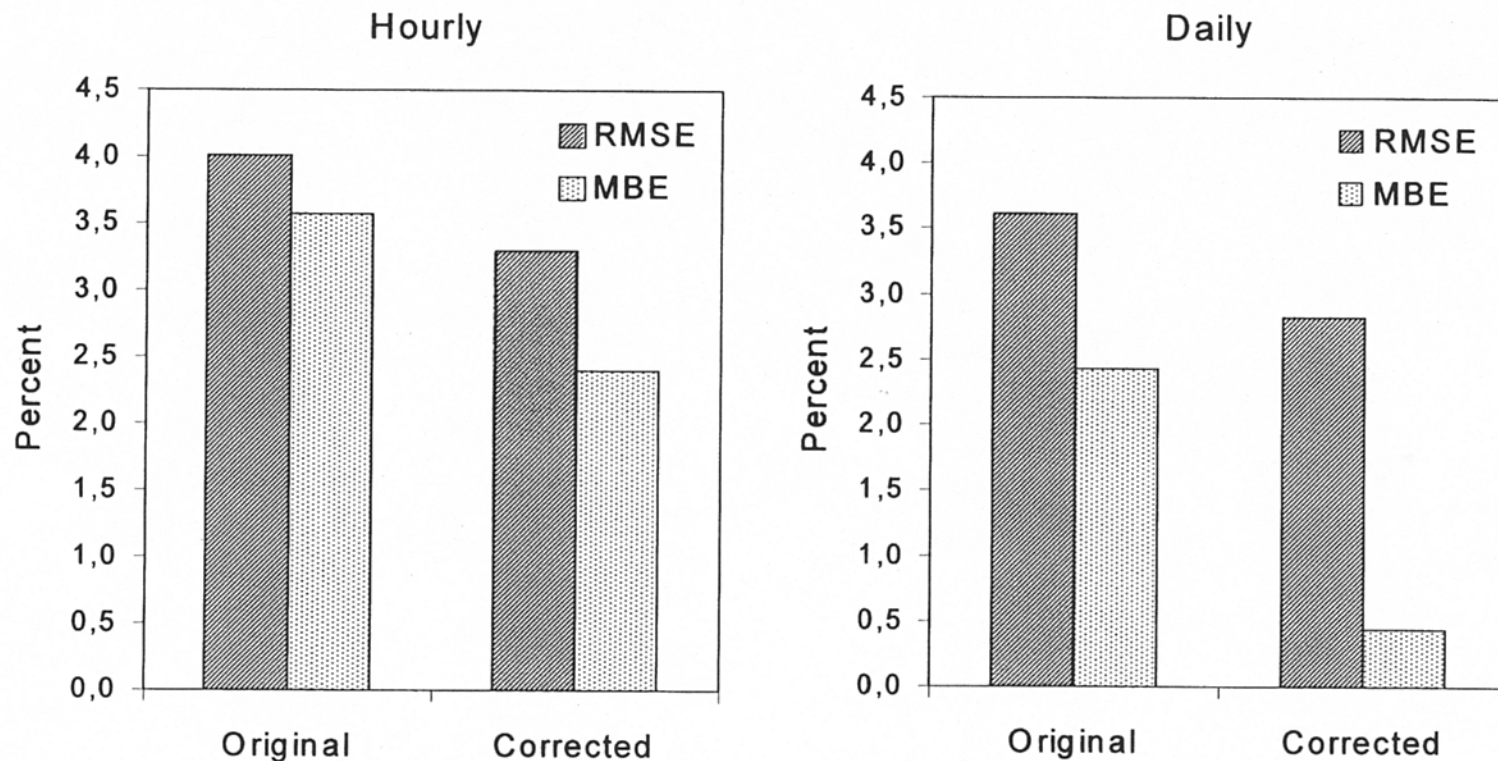
Geographical distribution of the total number of fire spots counted during the months of June and September of 1996. Data were calculated by using NOAA-12 AVHRR thermal sensor

June 96

September 96

Mean fire spots counts

0.01 — 0.06   0.06 — 0.40   0.40 -- 2.53   2.53 — 16.00
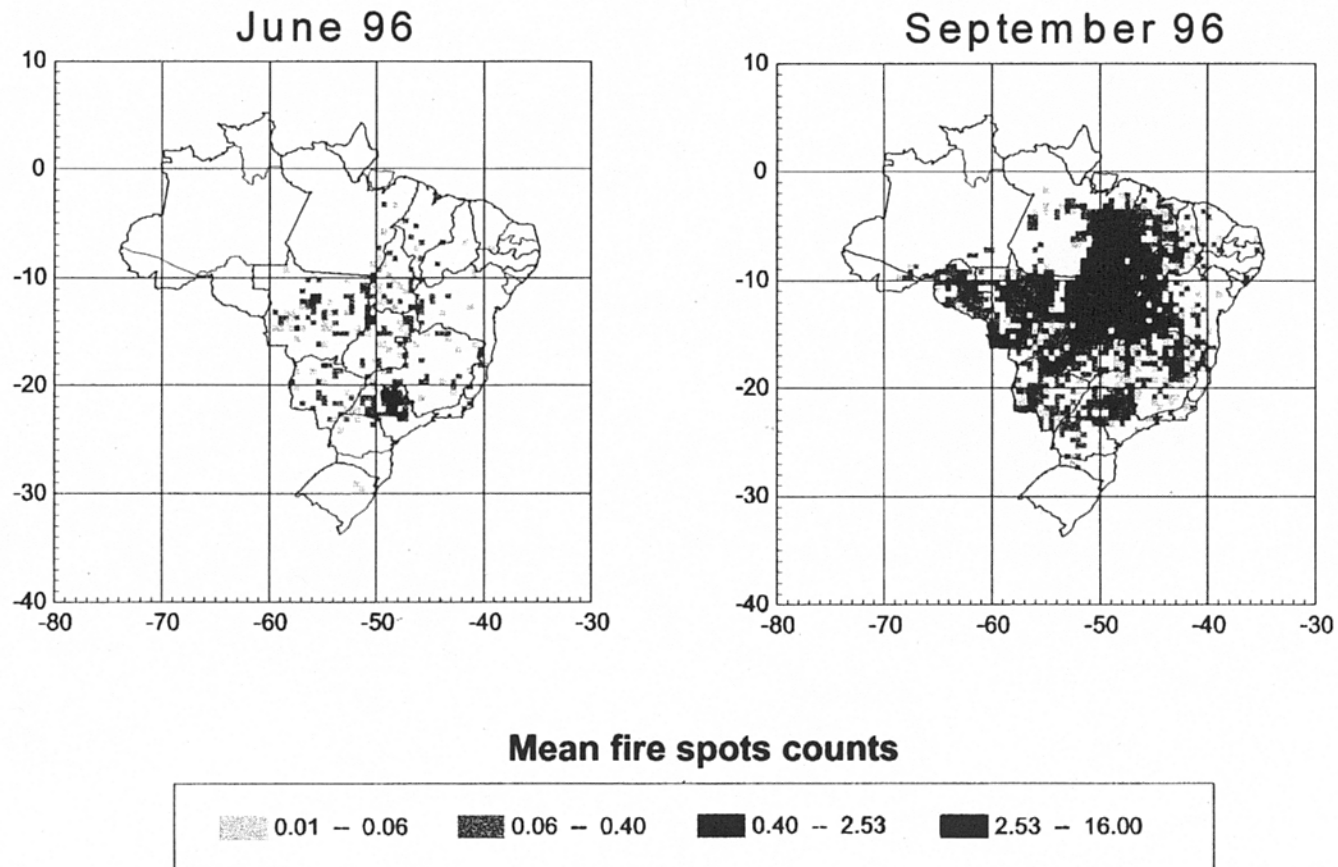
Number of fire spots in the five main climatic regions of Brazil

- Fire spots are detected by the NOAA-14 AVHRR satellite sensor at channel 3 (3.55 - 3.93 μm).

- Data are routinely acquired by CPTC-INPE and available at: www.cptec.inpe.br/products/queimadas

- Fires as small as 30m can be detected.

- Qualitative method – the number of fire spots is proportional to the area hit by fires.
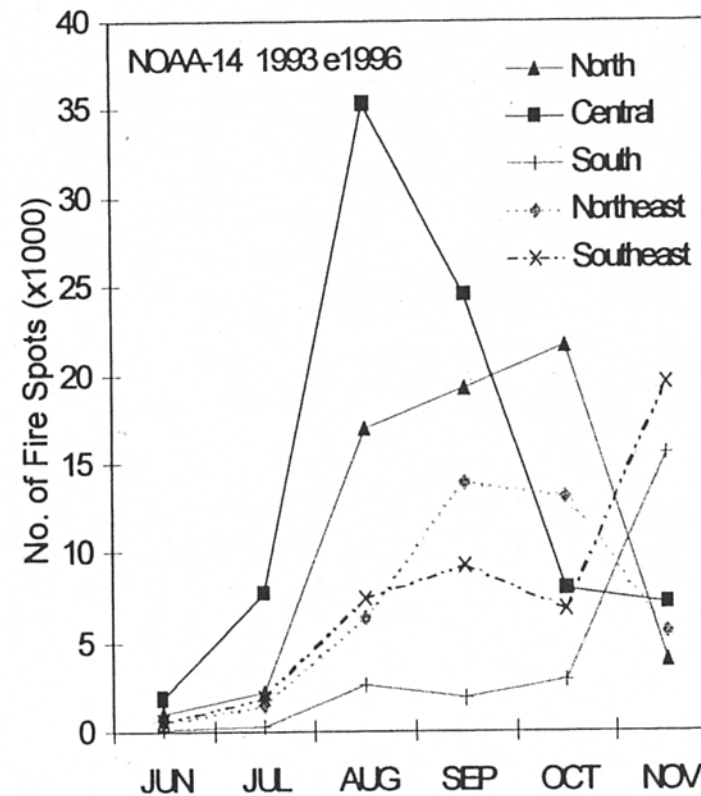
Variation of systematic errors (MBE) and random errors (RMSE) between daily sums of ground data and model estimations

- 235 clear-sky days from March trough October.

- Data split into two categories - for sites within and outside the biomass burning regions.

- Correlation Coefficients are indicated as a blue dashed line.

- Systematic deviation is about 4 times larger inside the burning region during clear sky days.
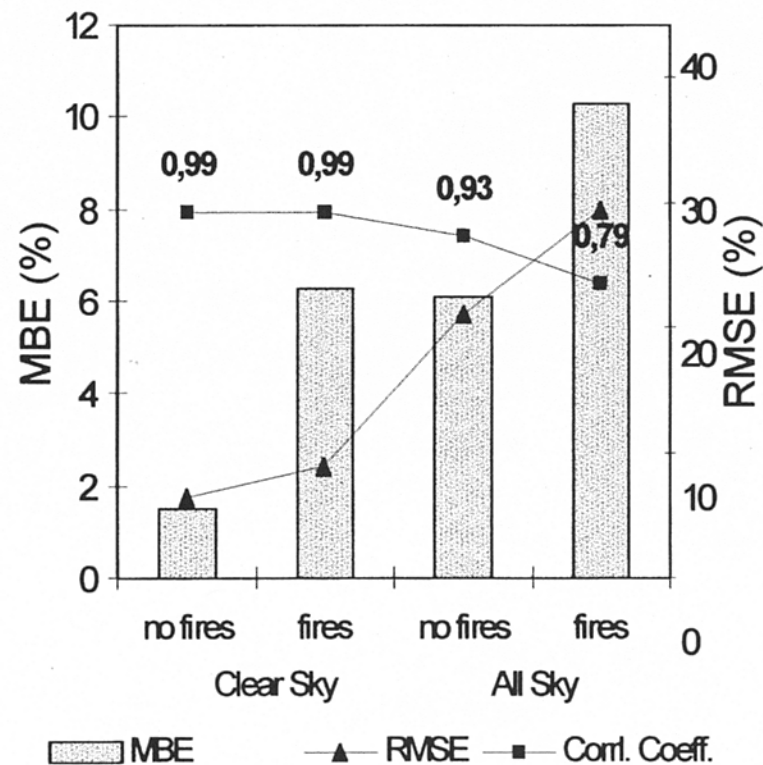
Impact of biomass fires on light transmittance versus solar zenith angle for several cases.
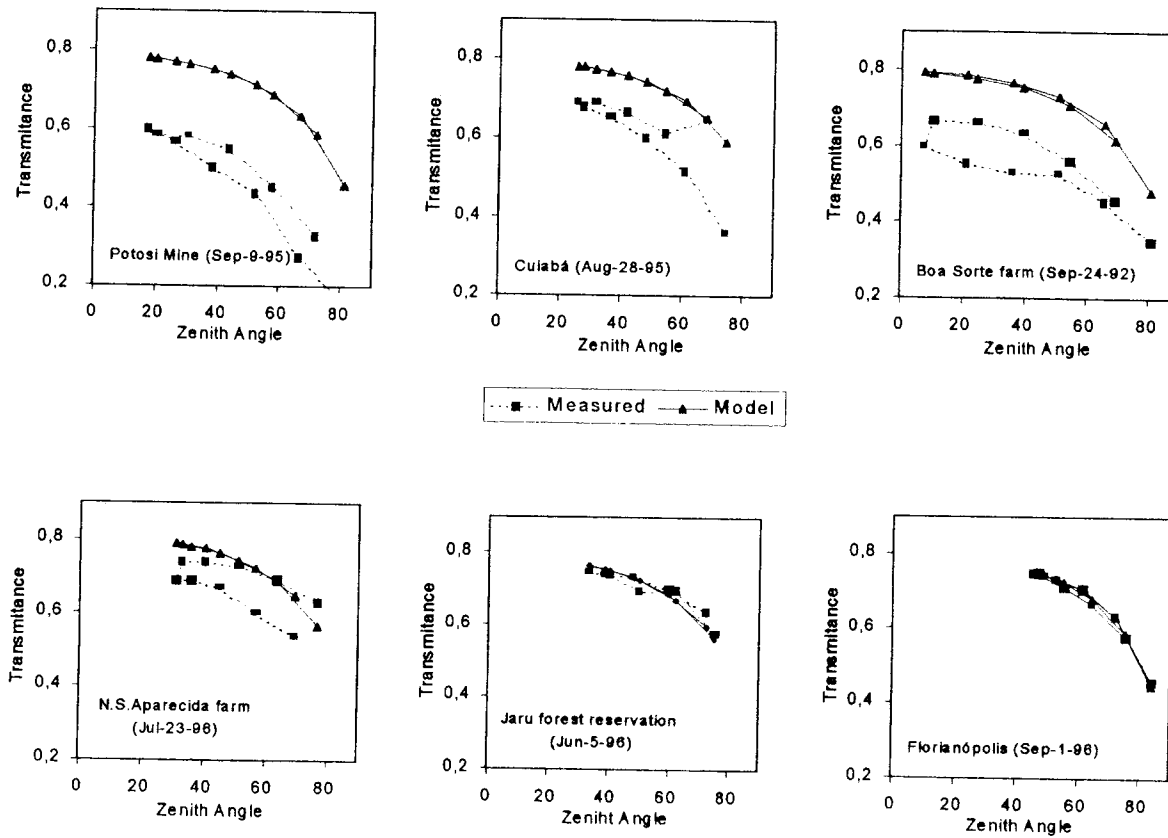
Time series for the MBE and number of fire spots in the Amazon region of Brazil.

- The maximum MBE is found for September when biomass burning activity in the area is also at its maximum

- The agreement between these two curves suggests that the two variables are linked to each other